

## Suggestions for Expanding the Capabilities of the Emergency Alert System (Comments on EB Docket No. 04-296)

October 29, 2004  
Peter K. Sheerin  
1121 Nimitz Lane  
Foster City, CA 94404  
[editor@petesguide.com](mailto:editor@petesguide.com)

The FCC is currently soliciting comments about proposed changes to the Emergency Alert System

Existing disaster notification methods in common use within the U.S. include:

- National Weather Radio All-Hazards alert system with county-specific alert coding
- EAS alerts transmitted via AM and FM broadcast stations
- EAS alerts transmitted via television broadcast stations
- Community Civil-Defense siren systems

For various technological and social reasons, I don't believe that these warning channels are sufficient to notify enough of the public to preserve lives and avoid panic in any true large-scale disaster that would require specific responses from the public, such as evacuation or shelter-in-place.

Therefore, these existing alert systems should be augmented with the use of modern technology to enable the dissemination of high-quality, concise alerts to the public by multiple, redundant methods, so as to ensure reception by the widest possible percentage of the population, no matter what their current activity.

**I believe a few new mandates need to be created in order to ensure that common electronic devices can participate in the expanded national/local alert system, and while such mandates may on the surface appear in direct conflict with the American ideals of competition and freedom of innovation, the particular technologies I believe should be used would be a very small, or even non-existent burden on the device manufacturers, and will even serve to enhance the business prospects of these device manufacturers and the broadcast and telecommunications industries that use the devices.**

In rough order of population reach and importance, the technologies that should be quickly enhanced to provide better alerts are:

1. **Mobile phone Text and Multimedia Messages**

With the widespread usage of cell phones in the U.S., across a wide span of age and other demographics, and with the increasing technical capabilities of the devices being sold, mobile phones should become one of the primary alert delivery systems. Mobile phone-based alerts can reach users when they are at home, at the office, traveling in cars or most public transit systems, and the odds that multiple people in any one location could receive an alert quickly will forestall mass panic due to rumors spreading and be able to transmit enough information to give citizens clear directions for what to do. This can be initiated in a short time with text messages using the Short Messaging Service (SMS) technology, by transmitting messages to all phones within range of any cell site that serves an affected area. **But even better alerts containing pictures, graphics, and sound can be delivered using the Multimedia Messaging Service (MMS), since colorful alerts with sound can offer a more comprehensive and attention-getting alert.** To ensure wide compatibility, though, device manufacturers will have to support the standard identically across their devices.

2. **Car Radios with Radio Data System (RDS)**

As a potentially large problem in many disasters will be traffic congestion as a result of panic and people trying to get away from an area, even if the hazards have passed, and because a significant portion of the population is traveling in automobiles at any one time, the car radio is a natural means of transmitting alerts. **Not only can RDS send text messages to the radio's display, it has built-in features for providing traffic alerts and supporting the EAS.** Such alerts need the capability of turning the radio on if off, to the radio if a CD is playing, or switch stations if the current one is not carrying the alert. Mandating that RDS be included in all cars and all new car stereos sold would add little to the cost of automobiles, provide a sophisticated alert technology, and its universal availability would provide an opportunity for increased revenues to the AM and FM broadcast industry. A similar capability should be mandated for satellite radio systems as well.

3. **A Universal Alert Composing System and Format**

Since the same message needs to be deployed across both existing and new alert systems, regardless of whether the alert is transmitted using broadcast EAS, Weather Radio, mobile phones, or RDS-enabled radios. Though an XML-based standard for enhancing the backend of the alerting network has been proposed, Common Alerting Protocol (CAP), this format is not quite ideal, and should be linked to another Internet standard, Synchronized Multimedia Integration Language (SMIL), that is the basis for the mobile phone MMS multimedia message format.

(Continued...)

**Political and commercial objections can be overcome by pointing out that those standing in the way of such technology are harming children, by preventing deployment of more effective AMBER Alerts.**

To ensure that the resulting composite alert system is robust, and that authorities can create alert messages that can actually work on all target devices without having to create different content for each brand or even each individual model, the FCC should withhold certification for devices that don't meet the minimum requirements, for a limited set of devices, including mobile phones, weather alert radios, and all car radios. This sounds draconian, but is necessary to avoid creating another Tower of Babel.

### **Mobile phone Text and Multimedia Messages**

To enhance the usefulness of mobile phones as an all-hazards alert platform, the FCC should ensure that devices sold in the U.S. after a given date support these minimum capabilities:

The ability to accept and display EMS (Enhanced Messaging Service) messages. EMS messages can contain more text than SMS messages, making it more useful for sending alerts than the 160 or fewer characters available in SMS. This should be the bare-minimum requirement, and left available for low-end phones to avoid making all phones more expensive, since there would be no need for a large color screen.

Vendors should be encouraged to include the more advanced MMS messaging capability in as many phones as possible, perhaps through a tax break, perhaps in streamlined permitting for tower installations, or with other incentives. To earn any of these incentives, a manufacturer or service provider should have to ship all or nearly all of its phones meeting these more advanced requirements:

The ability to receive and display a standard MMS message that the FCC, FEMA, or NWS creates, with either a minimum screen size (say, QVGA, 320 X 240 pixels, or perhaps QCIF, 176 X 144), one that the agencies determine is the minimum necessary to convey the information they feel is needed for their alerts; and consisting of any of the image formats allowed by the MMS specification, including JPEG images and SVG Basic graphics, and PNG images with complete support for alpha transparency for any format that supports it. Similar guidelines should be created for audio support to insure that one codec will be supported by all phones, and perhaps specifying a level of MIDI-SP support to allow more efficient delivery of alert tones by generating them on the phone instead of encoding them as an actual sound.

### **Car Radios with Radio Data System (RDS)**

Though there are a few cars manufactured in the U.S. that come equipped with RDS radios that will turn themselves on and tune to a specific station when an alert is received, there is little enough experience with the system that the FCC should look to how the RDS (a.k.a. RBDS) system has been deployed in Europe to determine the minimum technical requirements, but they should clearly indicate the ability to display a broadcast message at least as capable as that provided by SMS mobile phones, the ability to turn the radio on if off, tune to a different station if on, and switch from CD or other input to the radio.

### **SMIL as a Universal Alert Message Format**

SMIL enables the creation of bandwidth-efficient messages that contain sound, text, and images synchronized together in a format that supports deployment of one message with content that can be sent directly to both mobile phones *and* desktop computers without translation, or have individual parts extracted for inclusion in the appropriate media. For instance, a SMIL-based AMBER Alert could contain these discrete parts:

- An audio recording describing the abduction, which can be broadcast directly via Weather Alert Radio, AM and FM radio stations, and the Web as streaming audio.
- A text message with the description that can be sent reliably to old-fashioned mobile phones, RDS radios, and displayed as caption text on TV broadcasts, and via E-mail.
- Photographs showing the abducted child, a police sketch of the suspect, vehicles involved—ready for use in newspapers, flyers, TV broadcasts, and on Web pages.
- As a complete MMS alert containing all of those elements to modern graphics-capable mobile phones, with increased reliability if all future mobile phones were required to support a minimum, common set of MMS media types.
- As-is, to be delivered to desktop and mobile computers with full SMIL playback capability.

An easy-to-use program should be designed that could create a SMIL message by any government agency personnel responsible for generating alerts, ensuring consistent and quick formatting of the messages, simply by dragging and dropping images (perhaps even including a library of preformatted images for generic and specific types of vehicles). Also, a set of filter applications should be designed to parse the SMIL message and extract the items appropriate for each delivery mechanism, be it plain text, audio, images, or the whole thing as an MMS message. The source SMIL message could either be transmitted along with, or linked from, the Common Alerting Protocol, or a protocol for creating an MMS message based on the CAP message contents, and possibly a full SMIL file could be created.

In either case, the concept is that one original alert that uses a superset of all the alert device capabilities should be created, along with a defined method of degrading it as necessary for delivery to less-capable devices.